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Red blood cell segmentation using masking and watershed algorithm: a preliminary study

Abstract :

Image segmentation is the most important step and a key technology in image processing which directly affect the next processing. In human blood cell segmentation cases, many methods were applied for obtaining better results. It is basically an improved visualization to observe blood cell under blood smear process. This paper will present an approach for red blood cell (RBC) segmentation which is a part of study to perform automated counting for RBC. The methods involve are Ycbcr color conversion, masking, morphological operators and watershed algorithm. The combination of Ycbcr color conversion and morphological operator produce segmented white blood cell (WBC) nucleus. Then it is being used as a mask to remove WBC from the blood cell image. Morphological operators involve binary erosion diminish small object like platelet. The resulted RBC segmentation is passing through marker controlled watershed algorithm which handles overlapping cells. The improvement need to be done for both segmentation and overlapped cell handling to obtain better result in the future.